



Workplace Safety

## Cold Stress Protection: Tips for Cold Weather and Winter PPE Selection

Vanessa Jo Roberts | Dec 12, 2019

When winter bears down, here are a few pointers on selecting and recommending the appropriate protective gear to keep workers warm on the job.

Remember that childhood singalong favorite, “Head, Shoulders, Knees and Toes?” Well, it’s a handy line to help you plan what you need to select gear-wise as the weather turns from crisp to frigid.

Even if your business handles most of its work indoors, there are at least a few folks who must deal with the elements while on the clock. So how should you identify personal protective equipment needs correctly?

Think about that children’s song and start at the top, working your way down: head, face and eyes; body; and hands and feet

“Although the Occupational Safety and Health Administration does not have a specific standard that covers working in cold environments, employers have a responsibility to provide workers with employment and a place of employment which are free from recognized hazards, including winter weather related hazards, which are causing or are likely to cause death or serious physical harm to them,” the agency website notes on its *Winter Weather Preparedness page*.

And here’s another recommendation: Think less about the cold and more about heat, says Dr. Richard Ingebretsen of the University of Utah School of Medicine in a *WebMD article*.

“There’s really no such thing as ‘cold,’ when you’re talking about the body,” he says. “There’s always heat—it’s just a matter of keeping it in.”

Let’s look at those four areas that you’ll want to protect to keep warmth in.

### Cold Stress Tip #1: Protect Head, Face and Eyes in the Cold: Reduce Exposure

The idea that people lose more heat, percentage-wise, through their heads than other body parts has been *scientifically debunked*. It’s more perception than reality because your head is often the body part that is most exposed, Ingebretsen points out. If it’s not covered, or your face isn’t protected, then you

will lose heat and feel cold—just as you would if you wore shorts. It's that simple, he says.

Therefore, you want to provide effective head and face protection when exposed to frigid temperatures.

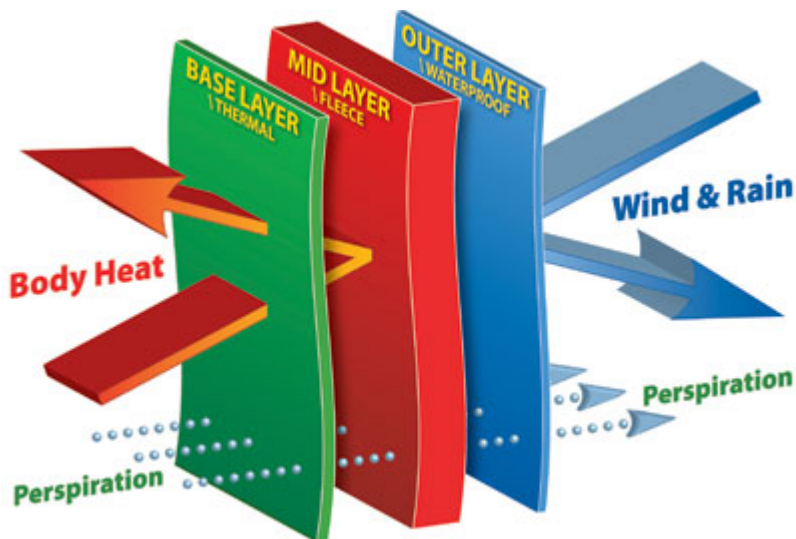
OSHA recommends a knit mask to cover the face, and mouth (if needed), and a hat that will cover your ears. "A hat will help keep your whole body warmer," OSHA notes. "Hats reduce the amount of body heat that escapes from your head."

For eyes, consider **sunglasses** or, in really extreme conditions, **goggles**. And provide saline so workers can keep their eyes moist and reduce irritation brought on by dryness. (This can be a winter issue indoors, too. "The use of heaters or blowers creates dryness in the air and workers might need to take extra steps to keep eyes moist and healthy. Humidifiers can be used to put moisture back in the air or eye drops can moisturize dry eyes," *EHS Today suggests*.)

## Cold Stress Tip #2: Keep Body Heat in When It's Cold: Use a Layering System

When it comes to keeping warmth in when it's cold, the chief strategy is to use layers and create a system that generates warmth around your body.

"It starts with a wicking layer to remove moisture from skin. From there it builds into heavier and more durable fabric to keep you warm," explains **Workplace Safety North**, which uses the diagram below to show how layering works.



The three layers work together to produce maximum warmth:

- For the base layer, you'll want to select long underwear that will keep skin as dry as possible.
- For the middle layer, your choice of fleece items or puffy jackets needs to be driven by temperature rating, so that the body can hold on to as much body heat as possible.
- For the **outer layer**, rain or wind gear needs to keep out elements that will cause body temperature to drop or allow dampness to creep in.

While these are the three primary layers, depending on the winter temperatures and conditions in your region, you might need multiples of more than one of the layers, OSHA notes.

## Do You Know the 5 Factors That Affect Cold Stress?

If you have workers who regularly work outside during the winter, you will want to train them to be aware of the factors that increase the likelihood of developing cold stress.

"Cold stress occurs when the skin temperature lowers, followed by the body temperature," says this *Safeopedia* article. "It can lead to serious health problems, including tissue damage and even death."

Here are the five factors that are most likely to drive up a worker's chance of suffering cold stress:

- Wetness or dampness
- Exhaustion
- Preexisting health conditions, such as hypertension or diabetes
- Poor physical conditioning
- Inadequate winter apparel

Read more about "*The Signs, Symptoms and Prevention for Cold Stress*."

The regulatory agency also provides some suggestions on the fabrics to consider when selecting items for each layer:

- For the base layer: wool, silk or synthetic (polypropylene). These will keep moisture away from the body and "will hold more body heat than cotton."
- For the middle layer: wool or synthetic. Here, these fabrics will "provide insulation even when wet."
- For the outer layer: wind and rain protective synthetics. Look for gear that also has "some ventilation to prevent overheating."

### Cold Stress Tip #3: Maintain Warmth for Hands and Feet: Keep Up the Layering Strategy

The principle of layering also applies to hands and feet, points out apparel industry expert Joyce Wooley in a *Safeopedia* article. She recommends the use of both insulated and waterproof *gloves* and boots.

"Mitts are often warmer than gloves, and they are a great choice for workers who need to hold up traffic control signs all day, but mittens can be impractical for any job that requires manual dexterity or precision," she advises. "Many PPE manufacturers offer a variety of cold weather work gloves that are thermal-lined, waterproof-insulated, or that have wind/water resistant shells."

With your *boots*, layer socks beneath and use the same fabric layers as for body clothing—to wick away dampness and retain heat. Also, keep your boots loose enough to prevent circulation issues caused by overtight fit.

*Share your tactics for keeping warm when working in cold conditions.*